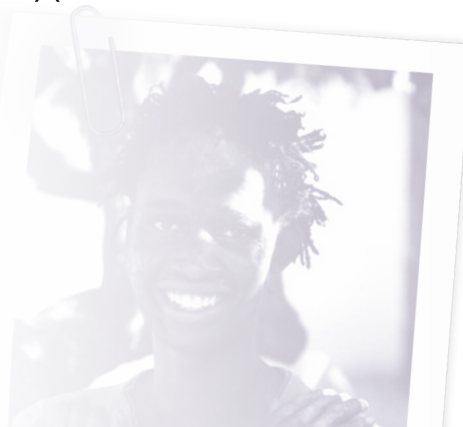




Children and burns



Children are naturally curious. As soon as they are mobile they want to explore their surroundings and play with new objects. Yet this natural learning process means they come into contact with objects that can cause burns. Playing with fire or touching hot objects can result in burns, causing intense pain and often long-term consequences. This creates suffering not just for the children but also for their families and the broader community.

What is a burn?

A burn is defined as an injury to the skin or other human tissue caused by heat. It occurs when some or all of the cells in the skin or other tissues are destroyed by hot liquids (scalds), hot solids (contact burns), or flames (flame burns). Injuries from radiation, radioactivity, electricity, friction or contact with chemicals are also regarded as burns.

Scale of the problem

Mortality

- Globally, nearly 96 000 children under the age of 20 were fatally injured as a result of a fire-related burn in 2004 alone.
- The death rate in low-income and middle-income countries is eleven times higher than that in high-income countries – 4.3 per 100 000 as against 0.4 per 100 000.
- Most of the deaths occur in poorer regions of the world – Africa and South-East Asia, and the low-income and middle-income countries of the Eastern Mediterranean Region.
- Studies from high-income countries suggest that smoke inhalation is the strongest determinant of mortality from

burns, mostly from fires in the home. For children over three years of age, smoke inhalation is strongly associated with mortality, despite improvements in the care of burns.

- Infants have the highest death rates, while those aged between 10 and 14 years have the lowest. The death rate climbs again for 15–19 year olds.
- Burns are the only type of unintentional injury where females have a higher rate of injury than males. The fire-related death rate for girls worldwide is 4.9 per 100 000 population versus 3.0 per 100 000 for boys.

Child mortality rates resulting from fire-related burns per 100 000 population^a, by WHO region and income level, 2004

Africa		Americas		South-East Asia	Europe		Eastern Mediterranean		Western Pacific	
LMIC	HIC	LMIC	LMIC	HIC	LMIC	HIC	LMIC	HIC	LMIC	LMIC
8.7	0.7	0.6	6.1	0.2	1.1	0.4	4.7	0.3	0.6	

^a These data refer to those under 20 years of age.
HIC = High-income countries;
LMIC = Low-income and middle-income countries.
Source: WHO (2008), *Global Burden of Disease: 2004 update*.

Morbidity

- While fire causes the majority of burn-related deaths in children, scalds and contact burns are an important cause in overall morbidity from burns, and a significant cause of disability.
- In high-income countries, children under the age of five have the highest rate of hospitalization from burns, followed by 15–19-year-olds.
- Nearly 75% of burns in young children are from hot liquid, hot tap water or steam. Infants under the age of one run a significant risk from burns, even in developed countries.
- Burns place a heavy economic load on health-care services. A study from the United States found that the cost of hospitalization from burns ranged from US\$ 1187 for scalds to US\$ 4102 per burn resulting from a fire.
- There are also costs to the children and their families in terms of repeat hospitalization, the need for long-term rehabilitation, lost school days, possible future unemployment, social rejection and other psychosocial issues.
- A Canadian study found that through a combination of educational and legislative measures, preventing scald burns could save 531 Canadian dollars (US\$ 507) per scald.

Risk factors

- Burns are the only type of fatal injury that occurs more frequently among girls than boys in the South-East Asia Region and in low-income and middle-income countries in the Eastern Mediterranean and Western Pacific Regions.
- Mortality and morbidity from burns are strongly associated with poverty, with a higher incidence of burns among children in low-income and middle-income countries and poorer families in high-income countries.
- Heating and lighting sources and cooking equipment, especially those relying on fossil fuels, all carry risks. In particular, heating or cooking on open fires that are at ground level pose significant dangers to children.
- Flammable substances such as kerosene and paraffin are dangerous when stored in the home.
- Fireworks pose a significant risk for children, particularly adolescent boys. Fireworks have been banned in many high-income countries, but in most low- and middle-income countries, there are no laws restricting their use.
- Socioeconomic factors that increase the risk of childhood burns include: low rate of literacy within the family; living in overcrowded dwellings or with cluttered areas in the home; failure to properly supervise children; a history of burns among siblings; and the absence of laws and regulations relating to building codes, smoke detectors and flammable clothing.

Fatal fire-related burn rates among children per 100 000 population^a by sex, WHO region and country income level, World, 2004

	Africa	Americas		South-East Asia	Europe		Eastern Mediterranean		Western Pacific	
	LMIC	HIC	LMIC	HIC	HIC	LMIC	HIC	LMIC	HIC	LMIC
Boys	8.9	0.7	0.7	3.3	0.2	1.3	0.6	3.6	0.3	0.4
Girls	8.5	0.6	0.6	9.1	0.2	1.0	0.1	5.8	0.3	0.8

^a These data refer to those under 20 years of age.

HIC = High-income countries; LMIC = Low-income and middle-income countries.

Source: WHO (2008), *Global Burden of Disease: 2004 update*.

Interventions

Burns can be prevented or minimized by implementing the following strategies.

Proven effective approaches to reducing burns —

- ✓ Establishing and enforcing legislation requiring the installation of working smoke alarms on all levels, including the sleeping areas, of homes.
- ✓ Developing and enforcing standards for the design and provision of child-resistant lighters.
- ✓ Developing and enforcing legislation requiring the regulation of the temperature of hot water from household taps.
- ✓ Establishing, operating and maintaining dedicated burn centres to attain better outcomes and less costly management.

What does not work?

- ✗ There is insufficient evidence to promote the use of community-based campaigns and interventions such as the distribution of smoke alarms (without accompanying laws), installing residential sprinklers and other home modifications, and home visitation programmes for at-risk families.
- ✗ Butter, sugar, oil and other traditional remedies should not be used on burns.

“Thermal burns are a common cause of accidental death in children worldwide. Despite various methods of prevention and care, such injuries are on the rise. Only through a deeper understanding of the underlying causes can we develop truly viable alternative solutions. If the proposals outlined in this report are implemented correctly, they can bring about the necessary changes.”

Mehmet Haberal

President of the International Society for Burn Injuries